Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM – SEMESTER – 6 EXAMINATION – SUMMER-2025

Subject Code: BP604TT Date: 17-05-2025

Subject Name: Biopharmaceutics and Pharmacokintetics

Time: 10.30 AM TO 01.30 PM Total Marks: 80

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss the physicochemical factors affecting the GI absorption of drugs.	**06**
	(b)	Explain briefly about different mechanism of drug absorption.	**05**
	(c)	Define drug distribution. Write a short note on volume of distribution.	**05**
Q.2	**(a)**	Define clearance and write about renal clearance in detail.	**06**
	(b)	Write a short note on kinetics of protein-drug binding.	**05**
	(c)	Discuss factors affecting renal excretion of drugs.	**05**
Q.3	**(a)**	Differentiate absolute and relative bioavailability. Discuss the pharmacokinetic methods for the bioavailability measurement.	**06**
	(b)	Write a note on IVIVC.	**05**
	(c)	Differentiate between plasma-protein drug binding and tissue-drug binding.	**05**
Q.4	**(a)**	What are pharmacokinetic models? What are applications of such models? Discuss any one pharmacokinetic model.	**06**
	(b)	What do you mean by nonlinear pharmacokinetics? Discuss factors causing Nonlinearity.	**05**
	(c)	Explain Michaelis-menton equation.	**05**
Q.5	**(a)**	Discuss briefly the concept of loading dose and maintenance dose.	**06**
	(b)	Write a brief note on two compartment open model.	**05**
	(c)	Explain merits and demerits of non-compartmental pharmacokinetics.	**05**
Q. 6	**(a)**	Write a brief note on physiological models.	**06**
	(b)	Write on methods to enhance dissolution rate of poorly soluble drugs.	**05**
	(c)	Derive equation in determination of absorption rate constant (Ka) using Wegner Nelson Method.	**05**
Q.7	**(a)**	List out the various pharmacokinetic parameters and define.	**06**
	(b)	Describe Latin Square cross over design for bioequivalence study.	**05**
	(c)	Explain physiological barriers to drug distribution in body.	**05**

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